Self-test SQL

Document: e0453test.fm

19/04/2012

ABIS Training & Consulting
P.O. Box 220
B–3000 Leuven
Belgium

INTRODUCTION TO THE SELF-TEST SQL

Instructions

The aim of this test is to estimate your SQL knowledge and to decide if it is advisable to start with the one day SQL fundamentals course before following the SQL workshop course or one of the database courses DB2, Oracle, MySQL or SQLServer.

This test consists of 15 multiple choice questions. Sometimes multiple answers are correct, in which case this will clearly be indicated. Write down your responses and compare them with the solutions given on the last page. This test will take about fifteen minutes.

Table and column information

The multiple-choice questions in this test will use two tables: **COURSES**, which contains all the courses that can be followed, and **SESSIONS**, which describes actually organised courses.

Example: We find the course 'SQL Workshop' in the COURSES table (with, among others, title and course number). In the SESSIONS table we find organised sessions of courses (with e.g. date, instructor). The relation between the SESSIONS and COURSES table is made with the column S_CID. In the following tables you can find the values of the COURSES and SESSION table; the column descriptions follow the tables.

CID	CTITLE	CDUR
7890	DB2	5
7910	Unix	4
8500	Oracle	5
8000	SQLServer	5
9000	SQL workshop	3

- **CID**: required, alphanumeric: course number (primary key).
- **CTITLE**: required, alphanumeric: course title.
- **CDUR**: required, numeric: course duration (in days).

SNO	S_CID	SDATE	SINSTRUCTOR	SCANCEL
10	7890	2005-12-02	DE KEYSER	
11	7910	2005-11-04	SMITHS	
12	7890	2006-01-08	DE KEYSER	C
13	7890	2006-02-02	DE KEYSER	
14	8000	2006-04-05	TAVERNIER	C
15	7910	2006-01-08	ADAMSON	C
16	8500	2006-04-05	ADAMSON	
17	9000	2006-06-07	ADAMSON	

- **SNO**: required, numeric: session number (primary key).
- **S_CID**: optional, alphanumeric: course number (foreign key to COURSES).
- **SDATE**: optional, date: start date of the session.
- **SINSTRUCTOR**: required, alphanumeric: instructor.
- **SCANCEL**: optional, alphanumeric: indicates whether session has been cancelled. ("C" means "cancelled", empty (NULL) means non-cancelled.)

QUESTIONS SELF-TEST SQL

1. Can this query be executed and is it useful (according to the table and column definitions)?

```
SELECT CTITLE, CID
FROM   COURSES
WHERE  CID = '7820'
```

   O (a) Query cannot be executed (gives a syntax error).

   O (b) Query can be executed and makes sense (according to the table and column definitions).

   O (c) Query can be executed but returns nonsense.

2. Can this query be executed and is it useful (according to the table and column definitions)?

```
SELECT CTITLE
FROM   SESSIONS
WHERE  S_CID = '7820'
```

   O (a) Query cannot be executed (gives a syntax error).

   O (b) Query can be executed and makes sense (according to the table and column definitions).

   O (c) Query can be executed but returns nonsense.

3. Can this query be executed and is it useful (according to the table and column definitions)?

```
SELECT 'CTITLE'
FROM   SESSIONS
WHERE  S_CID = '7820'
```

   O (a) Query cannot be executed (gives a syntax error).

   O (b) Query can be executed and makes sense (according to the table and column definitions).

   O (c) Query can be executed but returns nonsense.

4. Can this query be executed and is it useful (according to the table and column definitions)?

```
SELECT SDATE, DISTINCT S_CID
FROM   SESSIONS
ORDER BY S_CID, SDATE
```

   O (a) Query cannot be executed (gives a syntax error).

   O (b) Query can be executed and makes sense (according to the table and column definitions).

   O (c) Query can be executed but returns nonsense.

5. Can this query be executed and is it useful (according to the table and column definitions)?

```
SELECT SDATE
FROM   SESSIONS
ORDER BY SDATE
GROUP BY SDATE
```

O (a) Query cannot be executed (gives a syntax error).

O (b) Query can be executed and makes sense (according to the table and column definitions).

O (c) Query can be executed but returns nonsense.

6. Can this query be executed and is it useful (according to the table and column definitions)?

```
SELECT SNO
FROM   SESSIONS
WHERE  SCANCEL NOT = NULL
```

O (a) Query cannot be executed (gives a syntax error).

O (b) Query can be executed and makes sense (according to the table and column definitions).

O (c) Query can be executed but returns nonsense.

7. Which question corresponds best to the following query?

```
SELECT *
FROM   COURSES
WHERE  CTITLE LIKE '%SQL%'
  AND  CID NOT IN ('7800','7820')
```

O (a) Give the first row from the course table for which the column CTITLE equals %SQL% and for which the value in the column CID is neither 7800, nor 7820.

O (b) Give all rows from the course table for which the column CTITLE equals %SQL% and for which the value in the column CID is neither 7800, nor 7820.

O (c) Give the first row from the course table for which the column CTITLE contains the character sequence SQL and for which the value in the column CID is neither 7800, nor 7820.

O (d) Give all rows from the course table for which the column CTITLE contains the character sequence SQL and for which the value in the column CID is neither 7800, nor 7820.

O (e) Give the first row from the course table for which the column CTITLE equals %SQL% and for which the value in the column CID does not lie between 7800 and 7820.

O (f) Give all rows from the course table for which the column CTITLE equals %SQL% and for which the value in the column CID does not lie between 7800 and 7820.

O (g) Give the first row from the course table for which the column CTITLE contains the character sequence SQL and for which the value in the column CID does not lie between 7800 and 7820.

O (h) Give all rows from the course table for which the column CTITLE contains the character sequence SQL and for which the value in the column CID does not lie between 7800 and 7820.

8. Which question corresponds best to the following query?

```
SELECT CID, CDUR - 1,' = PRICE'
FROM   COURSES
ORDER BY 2
```

O (a) Select three columns from the COURSES table, of which the third one has a constant value, i.e. “ = PRICE”. Leave an empty line after every second line.

O (b) Select two columns from the COURSES table, the second one gets as title “ = PRICE”. Sort the data according to the second column, in ascending order.

O (c) Select three columns from the COURSES table, of which the third one has a constant value, i.e. “ = PRICE”. Sort the data according to the second column, in ascending order.

O (d) Select two columns from the COURSES table, of which the second one has a constant value, i.e. “ = PRICE”. Sort the data according to the second column, in ascending order.

9. Which table will be the result of the query?

```
SELECT S_CID, MAX(SNO)
FROM   SESSIONS
GROUP BY S_CID
ORDER BY 2
```

O (a)

S_CID	MAX(SNO)
7890	13
8000	14
7910	15
8500	16
9000	17

O (b)

S_CID	MAX(SNO)
7890	10,12,13
7910	11,15
8000	14
8500	16
9000	17

O (c)

S_CID	MAX(SNO)
7890	13
7910	15

O (d)

S_CID	MAX(SNO)
7890	10,12,13
7910	11,15

O (e)

S_CID	MAX(SNO)
9000	17

10. Which table will be the result of the query?

```
SELECT SNO, SDATE
FROM   SESSIONS
WHERE  EXTRACT(YEAR FROM SDATE) = 2004
  AND  EXTRACT(YEAR FROM SDATE) = 2005
```

O (a)

SNO	SDATE
10	2005-12-02
11	2005-11-04

O (b)

SNO	SDATE
10	2005-12-02

O (c)

SNO	SDATE
10,11	2005

O (d)

SNO	SDATE
10	2005

O (e)

SNO	SDATE

11. Give an equivalent for

```
WHERE S_CID BETWEEN '7000' AND '8000'
```

[2 correct answers.]

[_] [a] `WHERE S_CID >= '7000' AND S_CID <= '8000'`

[_] [b] `WHERE S_CID >= '7000' AND S_CID <  '8000'`

[_] [c] `WHERE S_CID >  '7000' AND S_CID <= '8000'`

[_] [d] `WHERE S_CID >  '7000' AND S_CID <  '8000'`

[_] [e] `WHERE S_CID <= '8000' AND NOT S_CID < '7000'`

[_] [f] `WHERE S_CID <  '8000' AND NOT S_CID <  '7000'`

[_] [g] `WHERE S_CID >= '7000' AND NOT S_CID >= '8000'`

[_] [h] `WHERE S_CID >  '7000' AND NOT S_CID >= '8000'`

12. Which queries give an answer to the following question? *[2 correct answers.]*

Give a list of all courses which took or will take place at least twice.

[_] [a]

```
SELECT S_CID, COUNT(*)
FROM   SESSIONS
WHERE  SCANCEL IS NULL
  AND  COUNT(*) >= 2
```

[_] [b]

```
SELECT CID, COUNT(CID)
FROM   COURSES
WHERE  COUNT(CID) >= 2
```

[_] [c]

```
SELECT S_CID, COUNT(S_CID)
FROM   SESSIONS
WHERE  SCANCEL IS NULL
GROUP BY S_CID
HAVING COUNT(*) >=2
```

[_] [d]

```
SELECT CID, COUNT(*)
FROM   COURSES
GROUP BY CID
HAVING COUNT(*) >= 2
```

[_] [e]

```
SELECT S_CID, COUNT(*)
FROM   SESSIONS
WHERE  SCANCEL IS NULL
GROUP BY S_CID
HAVING COUNT(S_CID) >=2
```

[_] [f]

```
SELECT CID, COUNT(*)
FROM   COURSES
GROUP BY CID
HAVING COUNT(SCANCEL) = 0
```

[_] [g]

```
SELECT S_CID, COUNT(*)
FROM   SESSIONS
GROUP BY S_CID
HAVING COUNT(SCANCEL) = 0
```

[_] [h]

```
SELECT CID, COUNT(SESSIONS)
FROM   COURSES
```

13. Which table will be the result of the query?

```
SELECT MAX(S_CID) AS S_CID
FROM   SESSIONS
GROUP BY SINSTRUCTOR
HAVING COUNT(SDATE) > 1
```

O (a)

S_CID
7890
7910
8000
8500
9000

O (b)

S_CID
7890
7910
8000
9000

O (c)

S_CID
7890
7910
8000
8500

O (d)

S_CID
7910
8500

O (e)

S_CID
7890
9000

O (f)

S_CID
9000

14. Which table will be the result of the query?

```
SELECT DISTINCT S_CID
FROM   SESSIONS
WHERE  SCANCEL IS NULL
```

O (a)

S_CID
7890
7890
7910
8500
9000

O (b)

S_CID
7890
7910
8500
9000

O (c)

S_CID
8000
8500
9000

O (d)

S_CID
7910
8500
9000

O (e)

S_CID
7890
7910
8000

O (f)

S_CID
7890
7910

15. Which queries give an answer to the following question? *[2 correct answers.]*

Give, per course number, an overview of the sessions, and mention whether they are cancelled or not. Sort the results per course by the column SCANCEL.

[_] [a]

```
SELECT   S_CID, SNO, SCANCEL
FROM     SESSIONS
GROUP BY S_CID, SCANCEL
```

[_] [b]

```
SELECT   S_CID, SNO, SCANCEL
FROM     SESSIONS
ORDER BY S_CID, SCANCEL
```

[_] [c]

```
SELECT   S_CID, SNO, SCANCEL
FROM     SESSIONS
GROUP BY S_CID
ORDER BY SCANCEL
```

[_] [d]

```
SELECT   S_CID, SNO, SCANCEL
FROM     SESSIONS
GROUP BY SNO
ORDER BY S_CID, SCANCEL
```

[_] [e]

```
SELECT   S_CID, SNO, SCANCEL
FROM     COURSES, SESSIONS
ORDER BY CID, SCANCEL, SNO
```

[_] [f]

```
SELECT   S_CID, SNO, SCANCEL
FROM     COURSES, SESSIONS
WHERE    CID = S_CID
ORDER BY S_CID, SCANCEL, SNO
```

EVALUATION.

Here are the correct answers to all questions:

1. b
2. a
3. c
4. a
5. a
6. a
7. d
8. c
9. a
10. e
11. a e
12. c e
13. e
14. b
15. b f

Give yourself 1 point for each correctly answered question; for multiple answer questions, all answers should be correct.

When your score is less than 8 out of 15, it is advisable to follow the SQL fundamentals course. You will get a high return from this course.

When you have between 8 and 12 it is best to consult us or your internal SQL responsible to decide if the SQL fundamentals course is still useful for you.

When you have more than 12 you can immediately follow one of the follow-up courses.